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SHEET 2

FIG. 3.

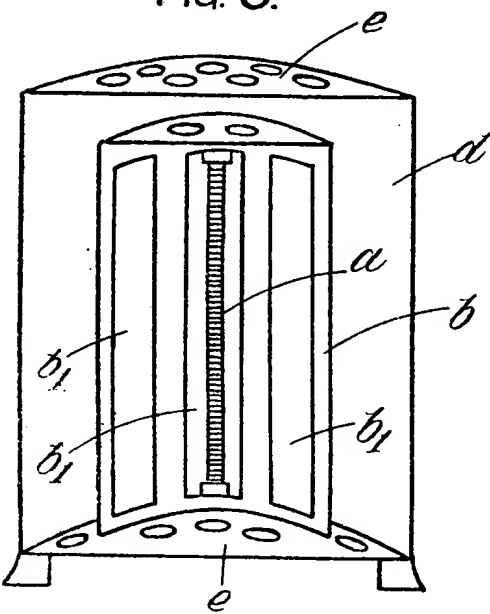


FIG. 4.

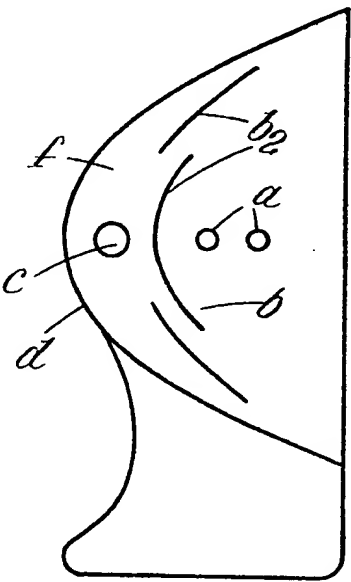


FIG. 5.

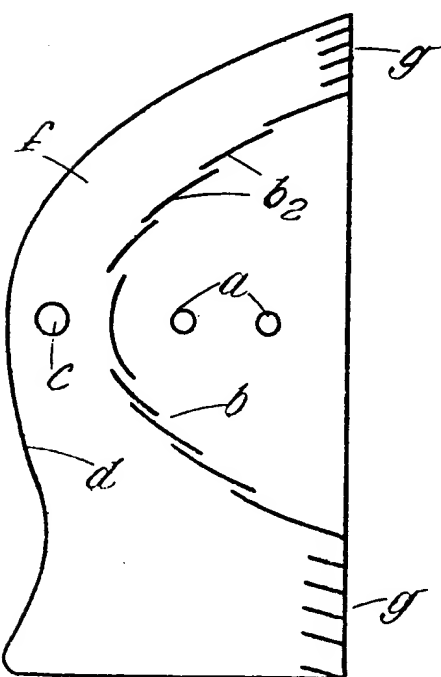
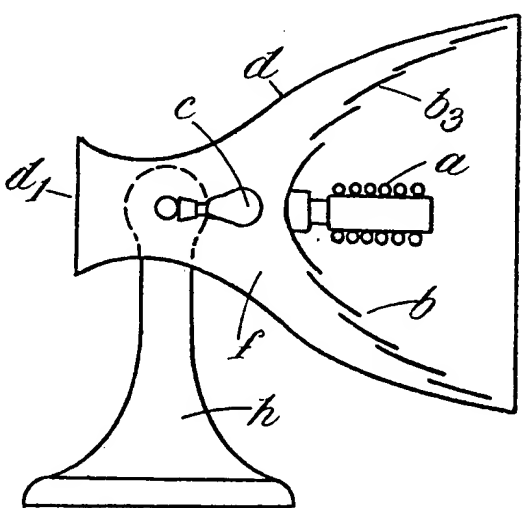


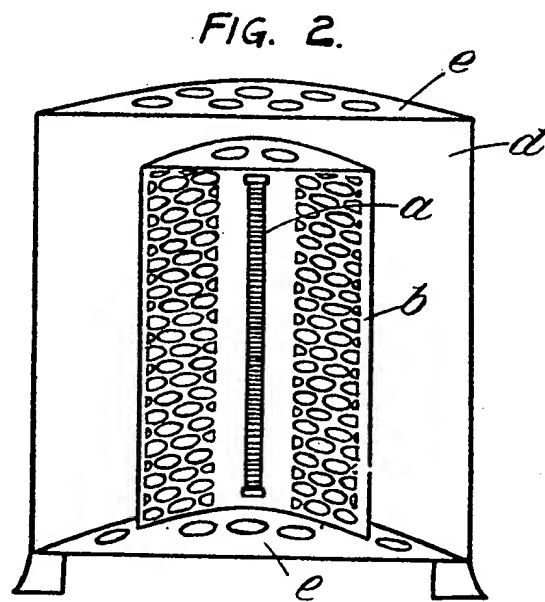
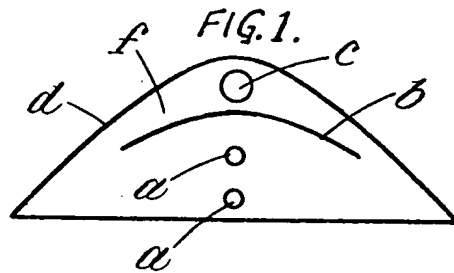
FIG. 6.



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## 473,182 COMPLETE SPECIFICATION

SHEET 1

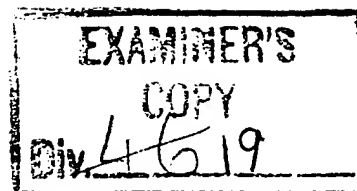


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# PATENT SPECIFICATION



473,182

Application Date : Feb. 9, 1937.

No. 4323/36.

Complete Specification Accepted : Oct. 8, 1937.

## COMPLETE SPECIFICATION

### Improvements in Radiators for Heating Buildings

I, FREDERICK ALEXANDER ROSS, of 23, The Broadway, Tynemouth, North Shields, Northumberland, of British nationality, do hereby declare the nature of this invention and in what manner the same is to be performed, to be particularly described and ascertained in and by the following statement:—

This invention relates to radiators for heating buildings and like purposes, of the type comprising a source of radiant heat using electricity, gas or oil and situated in front of a heat-reflecting surface, and its principal object is to provide a radiator having a cheerful and attractive appearance when in operation.

A radiator according to the invention therefore comprises a source of radiant heat mounted in front of a concave reflecting surface, substantially at the focus thereof, and a light source, mounted behind the reflector, whose light is visible from in front through a plurality of apertures or discontinuities in the reflecting surface, the arrangement being such that the said light does not fall directly on the heat source.

In most preferred forms of radiator according to the invention, a rear wall may be provided behind the light source to receive heat from the radiant heat source through the apertures in the reflector, the space between the reflector and the rear wall being arranged to form a heating conduit through which air circulates by convection.

Of the accompanying drawings:—

Figure 1 is a diagrammatic sectional plan of the radiators shown in Figures 2 and 3,

Figures 2 and 3 are front views illustrating different forms of the front reflector indicated in Figure 1, and Figures 4, 5 and 6 are diagrammatic sectional side elevations of three other practical forms of the invention.

The radiators shown in Figures 1 to 3 each comprise a vertically-disposed electric radiant heat element *a* mounted in front of an upright rectangular reflector *b* which is curved about a vertical axis lying in front of the radiator.

A red or orange electric lamp *c* (Figure 1) is mounted behind the reflector *b*, and to the rear of this is a generally concave backing member *d* forming the shell of the assembly and reinforced by upper and lower perforated end plates *e*. The lamp *c* will illuminate the shell *d* to form a cheerful glowing background to the actual heat-radiating portion of the radiator especially where, as may be the case in all constructions, the interior of the shell *d* has a white or reflecting surface to diffuse the light and appear uniformly illuminated.

As indicated in Figure 1, more than one heat element *a* may be provided, especially where the shell *d* is of a reflecting nature; for example two elements may be in focus with respect to the reflectors *b* and *d* respectively, so that the radiant heat is projected forwardly in separate or striated beams.

In the construction of Figure 2 the front reflector *b*, which is of polished sheet metal, is extensively perforated, and the background will therefore also show in a scattered manner through the reflector itself. A somewhat similar effect is secured in the construction of Figure 3 by forming the reflector *b* from a sheet of suitable translucent or transparent material, for example heat proof glass or quartz, and silvering it only over selected areas or strips *b*<sub>1</sub>.

It will be observed, more particularly from Figure 1, that the parts *b* and *d* together form a passage or conduit *f* having heated walls. Thus in Figures 2 and 3 radiant heat from the element *a* will impinge upon the rear wall *d* as well as heating the front wall *b*. Heated air therefore rises constantly from the top of this conduit into the room and is replaced by cool air entering at the base. If desired, this effect may be enhanced by the provision of a separate heating element (not shown) in the conduit in question.

The principal differences between the constructions above described and those shown in Figures 4 and 5 are that in the latter the general axis of the assembly is horizontal and the front approximately parabolic reflector *b* is built up of a

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number of mutually spaced metal strips  $b_2$  in the manner shown. Additionally, in Figure 5, louvres  $g$  are provided at the lower entrance and upper outlet of the conduit  $f$  to promote a steady circulation of air therethrough.

Figure 6 illustrates the invention as applied to a "bowl" fire adjustable as to tilt on a pedestal or base  $h$ . In this case the radiant heat element  $a$  is of the usual modified form extending forwardly along the axis of the bowl, and the front reflector is built up, as shown, with the use of a number of rings  $b_3$  of metal strip. It may also be found desirable or advantageous in such constructions to provide for the admission of cool air into the conduit  $f$  through an aperture  $d_1$  in the back of the radiator shell  $d$ . It may be noted that perforated or discontinuous front reflectors will allow radiant heat to pass rearwardly into the conduit  $f$  to heat the walls thereof, the rear wall or backing member being thus heated and at the same time reflecting this heat forwardly again on to the rear face of the front reflector. This latter face may be blackened for the better absorption of heat.

I am aware that it has already been proposed to aperture a concave reflector so that a light source may illuminate a heating element at the focus of the reflector to give such element the appearance of operating when it is not in fact switched on, and also that a radiator has been proposed having heating elements disposed behind a rearwardly-facing concave reflector, heat from this arrangement being reflected from a slatted or louvred reflector through which a light source is adapted to shine, and I make no claim to these arrangements.

Having now particularly described and ascertained the nature of my said invention and in what manner the same is to be performed, I declare that what I claim is:—

1). A radiator comprising a source of radiant heat mounted in front of a concave reflecting surface, substantially

at the focus thereof, and a light source, mounted behind the reflector, whose light is visible from in front through a plurality of apertures or discontinuities in the reflecting surface, the arrangement being such that the said light does not fall directly on the heat source.

2). A radiator according to Claim 1, in which a plurality of sources of radiant heat are mounted in front of the said reflector.

3). A radiator according to Claim 1 or Claim 2, in which a rear wall is provided behind the light source to receive heat from the radiant heat source through the apertures in the reflector, the space between the reflector and the rear wall being arranged to form a heating conduit through which air circulates by convection.

4). A radiator according to Claim 3, in which a heat source is mounted in the conduit so formed.

5). A radiator according to any of Claims 1 to 4, in which the reflector is formed of suitable perforated sheet material.

6). A radiator according to any of Claims 1 to 4, in which the reflector comprises a plurality of mutually spaced flat or appropriately curved strips of suitable sheet material.

7). A radiator according to any of Claims 1 to 4, in which the reflector is formed of a sheet of suitable translucent or transparent material not uniformly silvered.

8). Any radiator hereinbefore claimed and having a reflector substantially as hereinbefore described with reference to an accompanying drawing.

9). Any radiator substantially as hereinbefore described with reference to an accompanying drawing.

Dated this 9th day of February, 1937.

For the Applicant,

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